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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,604	09/27/2001	Eli Razon	RAZON-010	9362

7590

08/03/2006

John B. Sowell
182 Midfield Road
Ardmore, PA 19003-3213

EXAMINER

HAMILTON, ISAAC N

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/963,604

Applicant(s)

RAZON, ELI

Examiner

Isaac N. Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1, 2, 3, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cromeens (3,750,513) in view of Ono (4,688,540). Cromeens discloses spindle housing 19; cutting saw 2; coaxial spindle 1, 12, 16; center spindle 16; first mounting means in column 2, lines 17-20; first cutting saw blade 6; outer hollow spindle 12; second mounting means is inherent in column 2, lines 20-22; motor is inherently driving element 21; spindle positioning means 5; dicing saw blades 6, 7; saw blades 6 and 7 are capable of dicing wafers and singulating wafers; same rotational speed in column 1, line 13; outer hollow spindle 12 is mounted directly on center spindle 16 as shown in figure 2. Cromeens discloses everything as noted above, but does not disclose axial movement of the spindle housing, two spindle housings mounted side-by-side, spindle housings independently moveable in Y and Z axes, and does not disclose the motor directly coupled to one of the spindles and mounted in the spindle housing. However, Ono teaches axial movement of the spindle housing in column 8, lines 42-45; two spindle housings 134, 136 mounted side-by-side in figure 3 and teaches spindle housings independently moveable in Y and Z axes in columns 9-11, lines 49-21; motor 154A directly coupled to one of the spindles 152A via coupling means 156A and mounted in the spindle housing as shown in figure 3. It

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would have been obvious to provide axial movement of the spindle housing, two spindle housings mounted side-by-side, spindle housings independently moveable in Y and Z axes, and the motor directly coupled to one of the spindles and mounted in the spindle housing in Cromeens as taught by Ono in order to improve cutting efficiency. Note column 2, lines 55-58. Also note that the spindle housing and the spindles in Cromeens would replace each of the spindle housings 134, 136 and spindles 152A, 152 B in Ono.

3. Claims 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cromeens and Ono in view of Bodycomb (3,994,193). The combination discloses everything as noted above, but does not disclose an air bearing. However, Bodycomb teaches air bearing 46. It would have been obvious to provide an air bearing in the combination as taught by Bodycomb in order to minimize the forces used to move the hollow spindle. It is to be noted that the air bearing would be provided between the elements 16 and 12 in Ono, and between all of the elements 12-15 in Cromeens. Note movable actuating arm 42 and coupling means 62 in Cromeens '244 (3,630,244) as disclosed in column 1, line 50, of Cromeens.

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cromeens, Ono and Bodycomb as applied to claims 5 and 6 above, and further in view of Mueller et al (5,024,127), hereafter Mueller. The combination discloses everything as noted above, but does not disclose a voice coil actuating means. However, Mueller teaches voice coil actuating means 34. It would have been obvious to provide voice coil actuating means in the combination as taught by Mueller in order to provide an actuating means which provides substantial moving power and speed while requiring relatively low electrical power and space. Note column 1, lines 65-68. Note that the movable actuating arm is element 13 in Cromeens,

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which has an air bearing coupling due to the air bearing juxtaposed the elements 12 and 13 as taught by Bodycomb above.

5. Claims 1, 2, 3, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) in view of Gebruder (EP 0106907). APA discloses a cutting saw for dicing wafers and singulating substrates in figures 1, 2A and 2B; spindle housing 12 for mounting on wafer cutting saw 10; spindle housing 12 is mounted for axial movement via element 15; spindle drive motor 13; cutting saw blade 14. APA does not disclose a coaxial spindle mounted in the spindle housing, a center spindle having first axially movable mounting means for positioning a first cutting saw blade mounted on the center spindle, an outer hollow spindle mounted directly on the center spindle, a second mounting means for axially positioning the second cutting saw blade on the outer hollow spindle, a spindle positioning means for positioning one of the two cutting saw blades relative to the other cutting saw blade, and does not teach two blades in one spindle housing for simultaneously dicing a workpiece. However, Gebruder teaches coaxial spindle 10, 12; center spindle 12; an outer hollow spindle 10 mounted directly on the center spindle 12; first and second mounting means are between the saw blades and the spindles; first axially movable mounting means 18 for positioning a first cutting saw blade 16 mounted on the center spindle 12; second mounting means for axially positioning the second cutting saw blade 15 on the outer hollow spindle 10; a spindle positioning means for positioning one of the two cutting saw blades relative to the other cutting saw blade 17, 18; and two blades in one spindle housing for simultaneously dicing a workpiece as shown in figure 2. It would have been obvious to provide a coaxial spindle mounted in the spindle housing, a center spindle having first axially movable mounting means for positioning a first cutting saw blade

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mounted on the center spindle, an outer hollow spindle mounted directly on the center spindle, a second mounting means for axially positioning the second cutting saw blade on the outer hollow spindle, a spindle positioning means for positioning one of the two cutting saw blades relative to the other cutting saw blade, and two blades in one spindle housing for simultaneously dicing a workpiece in APA as taught by Gebruder in order perform several more dicing cuts in one cutting stroke. Note four spindles (10, 10', 12 and 12') in figure 2 of Gebruder are provided on two spindle housings 12 in figure 2A of APA in a side-by-side relationship, and the spindle housings are independently movable in the Y and Z axes.

6. Claims 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA and Gebruder in view of Bodycomb. The combination discloses everything as noted above, but does not disclose an air bearing. However, Bodycomb teaches air bearing 46. It would have been obvious to provide an air bearing in the combination as taught by Bodycomb in order to minimize the forces used to move the hollow spindle. It is to be noted that the air bearing would be provided between the elements 10 and 12 in Gebruder, and between elements 10 and 5 in Gebruder.

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA, Gebruder and Bodycomb as applied to claims 5 and 6 above, and further in view of Mueller et al, hereafter Mueller. The combination discloses everything as noted above, but does not disclose a voice coil actuating means. However, Mueller teaches voice coil actuating means 34. It would have been obvious to provide voice coil actuating means in the combination as taught by Mueller in order to provide an actuating means which provides

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substantial moving power and speed while requiring relatively low electrical power and space.

Note column 1, lines 65-68. The movable actuating arm is elements 20 and 19 in Gebruder.

Response to Arguments

8. Applicant's arguments filed 05/09/06 have been fully considered but they are not persuasive. The applicant asserts that blades 6 and 7 are not capable of dicing wafers, however, it is believed that it is possible to dice wafers with blades 6 and 7 because dicing is simply another name for cutting, and blades 6 and 7 certainly are capable of cutting. Moreover, "wafer cutting saw" is considered to be the intended use of the saw, and blades 6 and 7 are capable of dicing wafers as described above.

Applicant asserts that Cromeens does not show or explain how saw blades 7 to 10 and tubes 12 to 15 are moved in a horizontal direction. However, Cromeens (3,630,244) discloses how saw blades 7 to 10 and tubes 12 to 15 are moved horizontally, and is incorporated by reference in column 1, line 50.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant asserts that Cromeens has no spindle housing, however, any element outside of the spindle can be considered as a spindle housing. The spindle housing is disclosed as element

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19 in Cromeens. Moreover, Ono teaches moving the spindle housing, including all of its components, in the horizontal direction.

Applicant's arguments with respect to claims 5-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac Hamilton whose telephone number is 571-272-4509. The examiner can normally be reached on Monday through Friday between 8am and 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



IH

July 24, 2006



BOYER D. ASHLEY
SUPERVISORY PATENT EXAMINER